



Pre-Algebra Workbook

Factors and multiples

krista king
MATH

DIVISIBILITY

- 1. What are the whole numbers that divide into 49?
- 2. What are the whole numbers that divide into both 45 and 50?
- 3. How can you determine if a number is divisible by 5?
- 4. “Divisibility” of whole numbers means we’re looking at numbers that divide into a number _____.
- 5. What is the smallest whole number that’s divisible by both 3 and 5?
- 6. What is the smallest whole number larger than 20 that can be divisible by 2 and 4?
- 7. What is the smallest whole number larger than 50 that’s divisible by both 3 and 5?



MULTIPLES

- 1. List the first four multiples of 8.
 - 2. List the first five multiples of 40.
 - 3. Is 8 a multiple of 8? Why or why not?
 - 4. What are two common multiples of 2 and 3?
 - 5. What are two common multiples of 5 and 10?
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- 6. Complete the statement.

30 is a multiple of 5 because $5 \cdot \underline{\hspace{2cm}} = 30$.

- 7. Complete the statement.

The concept of multiples is related to the concept of .



■ 8. Complete the statement.

56 is a multiple of 8 because $56 \div 8 =$ _____.



PRIME AND COMPOSITE

- 1. Prime numbers are numbers that are only divisible by _____ and themselves.
- 2. _____ numbers are numbers that are divisible by numbers other than 1 and themselves.
- 3. Is 7 a prime or composite number?
- 4. Is 15 a prime or composite number?
- 5. 35 is a composite number because it's divisible by which numbers?
- 6. 98 is a composite number because it's divisible by which numbers?
- 7. By how many numbers will a prime number be divisible?



■ 8. Complete the statement.

We know that 16 is a composite number because not only is $16 \div 1 = 16$ and $16 \div 16 = 1$, we also know that $16 \div 4 = 4$, $16 \div 2 = 8$, and $16 \div 8 = \underline{\hspace{2cm}}$.



PRIME FACTORIZATION AND PRODUCT OF PRIMES

■ 1. What is the prime factorization of 75?

■ 2. What is the prime factorization of 55?

■ 3. What is the prime factorization of 148?

■ 4. Fill in the missing value.

The prime factorization of 156 is $2 \cdot 2 \cdot 3 \cdot$ _____.

■ 5. Fill in the missing value.

The prime factorization of 63 is $3 \cdot 3 \cdot$ _____.

■ 6. Prime factorization is when you break down a composite number into its factors until every factor is a _____ number.



LEAST COMMON MULTIPLE

- 1. Find the least common multiple of 3 and 15.
- 2. Find the least common multiple of 16 and 40.
- 3. Find the least common multiple of the set {36, 84}.
- 4. Find the least common multiple of 12 and 20.
- 5. If the prime factorization of one number is $2 \cdot 3 \cdot 5^2$, and the prime factorization of another is $2^3 \cdot 3$, what's the least common multiple of the two numbers?
- 6. Is there only one possible pair of two numbers that can have a LCM of 20? Give examples to support your answer.



GREATEST COMMON FACTOR

- 1. The greatest common factor of two numbers is the _____ number that divides evenly into both numbers.
- 2. Find the greatest common factor of 110 and 48.
- 3. Find the greatest common factor of 100 and 75.
- 4. Find the greatest common factor of the set {124, 256}.
- 5. Find the greatest common factor of the set {54, 162}.
- 6. If one number has a prime factorization of $3 \cdot 5 \cdot 11$, while another has a prime factorization of $2 \cdot 3^2 \cdot 11^2$, what is their greatest common factor?
- 7. If one number has a prime factorization of $2^4 \cdot 3 \cdot 11$, while another has a prime factorization of $2^3 \cdot 5$, What is their greatest common factor?



■ 8. Is there only one possible pair of two numbers that can have a GCF of 16? Give examples to support your answer.



